

1. A program filter using a plurality of carrying streams output from a plurality of demodulating circuits to filter the carrying streams, and output filtered results,

2. The program filter as claimed in claim 1, wherein the filtering processing and the storing processing of the filtered results in the storing circuit are performed in packets of the carrying streams.

a storing circuit for temporarily storing a header of a packet among packets configuring an input carrying stream or a parameter included in the header when filtering the carrying streams; and

a packet re-dividing circuit for dividing the data obtained as a result of filtering into a plurality of packets again and thereafter generating a carrying stream in which the divided packets are combined with the header of a header re-constituted

in accordance with the parameter.

4. A program filter using a plurality of carrying streams output from a plurality of demodulating circuits as inputs to filter the carrying streams and output filtered results; wherein

table-type information which is the information repeatedly transferred every a certain time interval and stream-type information which is the information whose contents change every moment are distinguished in order to update the information having a predetermined format from the information input as the carrying streams, and when the information which newly arrives is the table-type information, the information is overwritten on the information stored in a storing circuit and when the information which newly arrives is the stream-type information, the information is stored in a storing area different from the information already stored in the storing circuit.

5. A program filter using a plurality of carrying streams output from a plurality of demodulating circuits to filter the carrying streams and output filtered results, wherein

a program information table, a parameter setting circuit for setting a parameter of a packet to be filtered in accordance with the information stored in the program information table, and an updating circuit for filtering a packet input in accordance with the set parameter, referring the packet passing through the filter,

and updating the program information table are included.

6. The program filter as claimed in claim ~~5~~, wherein

a designated program-discriminating ID is converted into a corresponding packet ID by referring to the program information table to filter a carrying packet by using the packet ID obtained as a result of conversion.

7. The program filter as claimed in claim ~~5~~, wherein

when it is judged that as a result of referring to the program information table, the information requested by a user cannot be obtained from the carrying streams which are outputs of the demodulating circuit, settings of the demodulating circuit are changed so as to output a carrying stream required by the demodulating circuit by referring to the program information table.

8. A program filter inputting a plurality of carrying streams output from a plurality of demodulating circuits to filter the carrying streams and outputting filtered results, making it possible to independently set a filtering condition for a certain carrying stream and a carrying stream to which the filtering condition should be applied independent of the filtering condition.

9. A digital-broadcast receiving apparatus comprising a

plurality of demodulating circuits, a program filter for inputting a plurality of carrying streams output from the demodulating circuits, filtering the carrying streams, and outputting filtered results, a memory buffer for storing outputs of the program filter, and a recording/reproducing circuit or a decoder, wherein

the program filter is provided with a packet filter for receiving inputs from the demodulating circuit and extracting only necessary information according to a designation of a user out of the inputs and a memory interface circuit for writing outputs of the packet filter in the memory buffer,

the packet filter is provided with a judging circuit for comparing and judging whether a packet ID of each packet of a carrying stream output from the demodulating circuit matches a previously entered packet ID and a controlling circuit for passing the packet whose packet ID matches the previously entered packet ID as a result of comparison, and

the memory interface circuit writes a packet output from the packet filter in the memory buffer.

10. The digital-broadcast receiving apparatus according to claim 9, wherein a data reproducing circuit corresponding to each of the packet filters and using outputs of the packet filters as inputs to reproduce original data in accordance with a payload in each packet of the carrying stream, store a header of each packet

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a table updating circuit for successively overwriting input pieces of information at predetermined positions of a table-

type-information storing circuit.

12. The digital-broadcast receiving apparatus as claimed in claim 9, wherein the memory interface circuit is provided with;

5 a FIFO buffer for absorbing delays due to processings by the data distributing circuit and the table updating circuit and shifts of output timings of the packet filters,

10 a data distributing circuit for judging whether outputs of the packet filters are stream-type information, table-type information, or combined-table-type information, and when the outputs of the packet filters are judged to be the stream-type information, transferring the outputs of the packet filters to a stream-type-information storing area in the memory buffer and when they are judged to be the table-type information or
15 combined-table-type information, transferring them to a table updating circuit, and

20 a table updating circuit for, when input information is the table-type information, transferring it to a table-type-information storing circuit in the buffer memory and when the input information is the combined-table-type information, transferring it to a table-type-information designating circuit, and

25 the table-type-information designating circuit selects table-type information out of input combined-table-type information in accordance with a table designation by a user to

pass the table-type information and transfers the table-type information to a combined-table-type-information storing circuit in the memory buffer.

13. The digital-broadcast receiving apparatus as claimed in claim 9, wherein the memory interface circuit is provided with;

a FIFO buffer for absorbing delays due to processings by the table updating circuit and packet-ID updating circuit and shifts of output timings of the packet filters,

a table updating circuit for updating a program related table for storing the information transferred by a packet provided with a predetermined packet ID in accordance with a packet which arrives and a program map table for storing a packet ID relating to a program, and

a packet-ID updating circuit for reading packet IDs of packets for carrying the information of the program map table stored in the program related table, setting the packet IDs to the packet filters, and updating a program information table constituted of the program related table and the program map table.

14. The digital-broadcast receiving apparatus as claimed in claim 13, wherein

a program map table formatted so that a plurality of program discriminating IDs and packet IDs relating to the program discriminating IDs are stored and when designating a certain

program discriminating ID, a plurality of packet IDs relating to the program discriminating ID can be retrieved, and a packet-ID retrieving circuit to which a program discriminating ID is input from an external unit to retrieve a packet ID relating to an input program-discriminating ID among packet IDs stored in the program map table and supply a packet ID obtained as a result of retrieval to a packet filter are included, and

the data distributing circuit transfers table-type information relating to the program related table and the program map table to the table updating circuit and outputs program related information relating to a designated program-discriminating ID to a program-related-information storing circuit.

15. The digital-broadcast receiving apparatus as claimed in claim 14, wherein

the packet-ID retrieving circuit outputs mismatching detection when an input program discriminating ID is not detected in a program map table, starts a carrying-stream designating circuit,

the carrying-stream designating circuit extracts a carrying-stream ID corresponding to a mismatching-program discriminating ID from an event information table when mismatching detection is input and outputs the carrying-stream ID to the demodulating circuit, and

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17. A digital-broadcast receiving method using a plurality of carrying streams output from a plurality of demodulating circuits as inputs to filter the carrying streams and output filtered results, wherein

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19. A digital-broadcast receiving method using a plurality of carrying streams output from a plurality of demodulating circuits as inputs to filter the carrying streams, divide the data obtained as a result of filtering into packets again, and output the packets

as carrying streams, the method comprising the steps of:

temporarily storing in the storing circuit a header of each packet passing through a filter or a parameter included in the header among packets configuring an input carrying stream when
5 filtering the carrying streams; and

dividing the data obtained as a result of filtering into a plurality of packets again to generate a carrying stream in which the divided packets are combined with the header reconstituted in accordance with the parameter.

10 20. A digital-broadcast receiving method using a plurality of carrying streams output from a plurality of demodulating circuits as inputs to filter the carrying streams and output filtered results, the method comprising the steps of:

15 distinguishing between table-type information which is the information repeatedly transferred at a certain time interval and stream-type information which is the information whose contents change every moment in order to update the information having a predetermined format in accordance with the information input as
20 the carrying stream; and

overwriting the information which newly arrives on the information stored in a storing circuit when the former information is the table-type information and storing the information which newly arrives in a storing area different from
25 the information already stored in the storing circuit when the

former information is the stream-type information.

21. A digital-broadcast receiving method using a plurality of carrying streams output from a plurality of demodulating circuits as inputs to filter the carrying streams and output filtered results, the method comprising the steps of:

setting a parameter of a packet to be filtered in accordance with the information stored in a program information table;

filtering an input packet in accordance with the set parameter; and

referring to a packet passing through the filter and updating the program information table.

22. The digital-broadcast receiving method as claimed in claim 21, wherein

a designated program-discriminating ID is converted into a corresponding packet ID by referring to the program information table and a carrying packet is filtered by using the packet ID obtained as a result of conversion.

23. The digital-broadcast receiving method as claimed in claim 21, wherein

when it is judged that the information requested by a user cannot be obtained from the carrying streams which are outputs of the demodulating circuits as a result of referring to the

program information table, settings of the demodulating circuits are changed so as to output carrying streams required by the demodulating circuits by referring to the program information table.

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24. A digital-broadcast receiving method using a plurality of carrying streams output from a plurality of demodulating circuits as inputs to filter the carrying streams and output filtered results, making it possible to set a filtering condition corresponding to a certain carrying stream and a carrying stream to which the filtering condition should be applied independent of said filtering condition.

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25. A bitstream representing a result of filtering a plurality of carrying streams, wherein

the filtered results are temporarily stored in a storing circuit constituted of a single memory space and thereafter generated.

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26. The bitstream as claimed in claim 25, wherein

the filtering and the storing of the filtered results in the storing circuit are performed in packets of the carrying streams.

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27. A bitstream using a plurality of carrying streams output from a plurality of demodulating circuits as inputs to filter the

temporarily storing a header of each packet passing through a filter among packets configuring an input carrying stream or a parameter included in the header when filtering the carrying streams; and

28. A bitstream using a plurality of carrying streams output from a plurality of demodulating circuits as inputs to filter the carrying streams and represent a result of filtering, the bitstream produced by the steps of:

overwriting the information which newly arrives on the information stored in a storing circuit when the former information is the table-type information and storing the

information which newly arrives in a storing area different from the information already stored in the storing circuit when the former information is the stream-type information.

- 5 29. A bitstream using a plurality of carrying streams output from a plurality of demodulating circuits as inputs to filter the carrying streams and represent a result of filtering, the bitstream produced by the steps of:

10 setting a parameter of a packet to be filtered in accordance with the information stored in a program information table;

 filtering an input packet in accordance with the set parameter; and

 referring to a packet passing through the filter and updating the program information table.

- 15 30. The bitstream as claimed in claim 29, wherein

 a designated program-discriminating ID is converted into a corresponding packet ID by referring to the program information table and a carrying packet is filtered by using the packet ID
20 obtained as a result of conversion.

31. The bitstream as claimed in claim 29, wherein

 when it is judged that the information requested by a user cannot be obtained from the carrying streams which are outputs
25 of the demodulating circuits as a result of referring to the

program information table, settings of the demodulating circuits are changed so as to output carrying streams required by the demodulating circuits by referring to the program information table.

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32. A bitstream using a plurality of carrying streams output from a plurality of demodulating circuits as inputs to filter the carrying streams and show a result of filtering, making it possible to set a filtering condition for a certain carrying stream and a carrying stream to which the filtering condition should be applied independent of the filtering condition.

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